


States of Consciousness

Sleep & Dreams

Consciousness

- ❧ Normal state of awareness that includes feelings, sensations ideas and perceptions
 - ❧ Alert
 - ❧ Consciously aware
 - ❧ Spend most time
- 
- ❧ Aware of surroundings and sensations, thoughts, feelings, experiences, etc.

Daydreams



- ☞ Everyday consciousness and dreams that sometimes get combined
- ☞ Thinking and feeling are not bound by logic
- ☞ Low levels of awareness
- ☞ Involves fantasizing or idle but directed thinking while awake
- ☞ Occurs when we are in a situation that requires little attention or when we are bored
- ☞ Remind us , prepare us for future events, improves creativity, and help us to control emotion
- ☞ **Freud** = Daydreams release tension

Divided Consciousness

- ☞ Mentally in two places at the same time
- ☞ Try to complete two different activities simultaneously
- ☞ **Hilgard** – Conscious awareness is split so that we can simultaneously perform 2 activities



- ☞ Humans are not good at dividing our consciousness and multitasking
- ☞ Distractions are linked to errors and many accidents

Unconscious



- ❧ Unconsciously aware or Consciously Unaware
- ❧ Does this mean we don't know what is happening around us?
- ❧ NOT ENTIRELY
- ❧ Auditory information is processed while we are asleep
- ❧ Give more attention to threatening words due to emotional charge

Cocktail Party Phenomenon



Sleep

- ❧ What happens while we are sleeping?
- ❧ Sleep is a very complex state of awareness
- ❧ Complex combinations
- ❧ 1/3 of our lives
- ❧ Needs vary from person to person and by time periods in a person's life

Sleep

☿ Why do we sleep?

- ☿ Characterized by unresponsiveness to the environment and limited physical mobility
- ☿ Restorative – Allows us to recharge and for the brain to recover from exhaustion and stress
- ☿ Primitive Hibernation – Conserve Energy
- ☿ Sleep as an adaptive process – Protection from Harm
- ☿ Sleep to clear the mind of useless information – Sleep to dream

Hypnagogic Stage

- ❧ In-Between Wakefulness and Sleep
- ❧ Drifting
- ❧ Twilight Stage
- ❧ Aware of surroundings but cannot react =



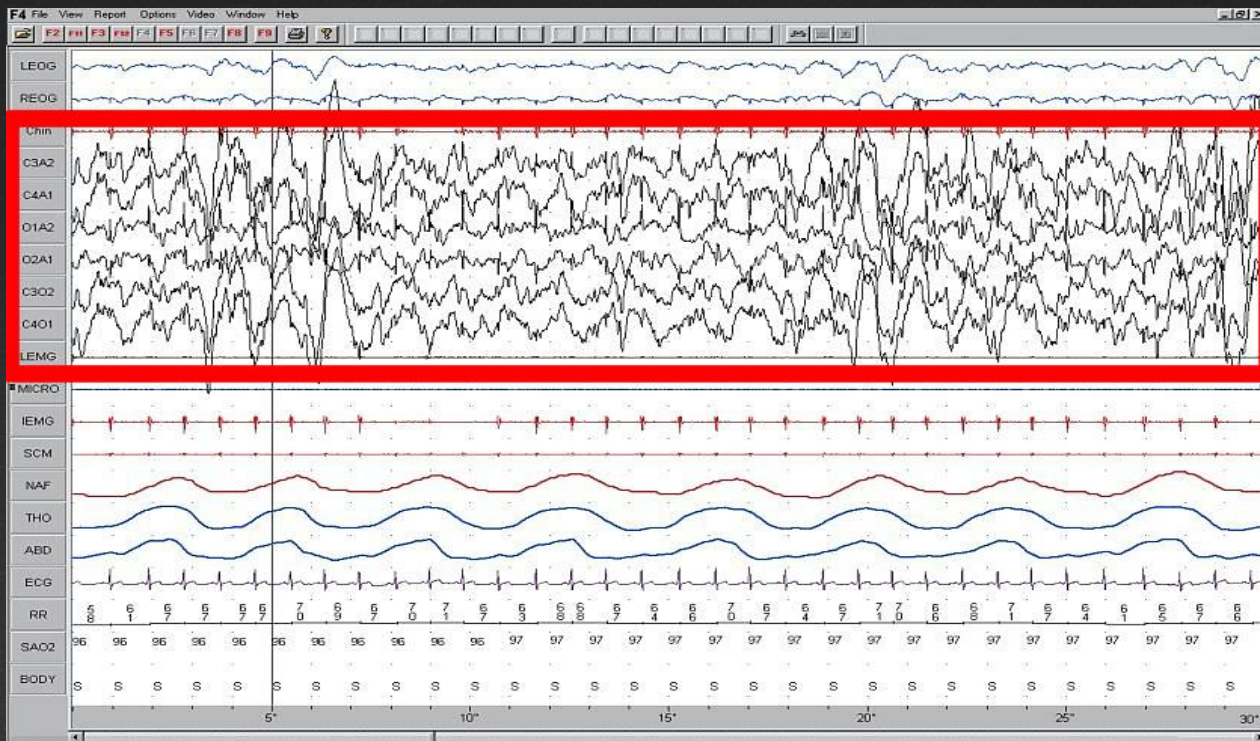
❧ Sleep Paralysis



EEG



Measures changing brain or neural activity



Wide Awake



Awake



Stages of Sleep :

Stage 1



Stages of Sleep :Stage 1

- ☞ Temperature decreases
- ☞ Pulse rate drops
- ☞ Breathing becomes slow and even
- ☞ Eyes close
- ☞ Alpha Waves on EEG when drifting – associated with the absence of concentrated thought and relaxation
- ☞ Body may twitch, eyes may roll
- ☞ Brief visual images flash across the mind



Stages of Sleep: Stage 1

- ☞ Pulse slows more
- ☞ Muscles relax
- ☞ Breathing becomes uneven
- ☞ Brain waves grow irregular
- ☞ “Just Drifting” – 10 minutes
- ☞ Theta Waves of EEG – lower amplitude and frequency than alpha waves. Some beta waves, similar to those seen in the waking state

Stages of Sleep:

Stage 2

Stage 2 

Stages of Sleep: Stage 2

- ❧ Sleep Spindles – Short bursts of electrical activity
- ❧ Shift from low-amplitude, high-frequency waves to high-amplitude, low-frequency waves
- ❧ Eyes slowly roll from side to side
- ❧ Lasts about 30 minutes



Stages of Sleep:

Stage 3

Stage 3



Stages of Sleep: Stage 3



- ❧ Large-amplitude delta waves begin to sweep your brain every second or so.



Stages of Sleep:

Stage 4



Stages of Sleep: Stage 4

- Deepest stage of sleep
- Difficult to awaken the sleeper
- Large, regular delta waves occurring more than 50 % of the time indicate that you are in a deep state of sleep – about 30 minutes after sleep onset
- If awakened by a loud noise or sudden movement you may be disoriented
- Sleeptalking, sleepwalking, bed-wetting – leave no trace on the memory (**Parasomnia**)
- Important to physical and psychological well-being



Stages of Sleep:

REM Sleep

REM



Stages of Sleep: REM Sleep

- Only 25% of the time spent in sleep (15 – 45 min each cycle)
- Muscles are even more relaxed than they were before
- Eyes begin to move rapidly
- Face, Fingers Twitch
- Large muscles in your arms and legs are paralyzed
- Brain shows waves that closely resemble those of a person who is fully awake – Beta waves
- Active Sleep (NREM sleep = quiet sleep with slower pattern of brain waves)
- Most dreaming takes place in REM sleep



Paradox of Sleep



- ❧ Brain is never becomes completely inactive
- ❧ REM Sleep is most active sleep
- ❧ Learning & Memory



Features of Normal Sleep

- ❧ 90 minute Cycles
- ❧ The occurrence of the deepest sleep near the beginning of the night
- ❧ Increase in REM duration as sleep progresses

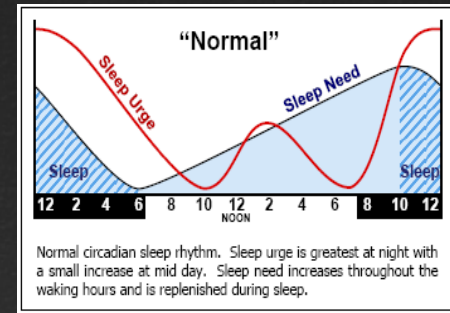
Sleep Cycle



- ❧ Most people will make the circuit up and down through the stages of sleep four to six times each night
- ❧ In each successive cycle, the amount of time spent in stages 3 and 4 (deep sleep) decreases, and the amount of time spent in REM sleep increases
- ❧ REM sleep ranges from 10 minutes to 60 minutes – depending on the cycle

Circadian Rhythm

- ❧ The rhythm of activity and inactivity lasting approximately one day
- ❧ Biological clock that regulates the sleep and wakefulness cycle
- ❧ Genetically programmed
- ❧ 24-25 hour cycle
- ❧ Blood pressure, heart rate, appetite, secretion of hormones, and digestive enzymes all follow circadian rhythms.
- ❧ Continue to operate when normal day and night cues are removed



Circadian Rhythm



Can we
“catch up”
on missed sleep?

Circadian Rhythm

- ❧ Does not control sleep cycles – 24 hour day and our environment control our sleep cycles
- ❧ Jet Lag – 1 day per hour change to reset
 - ❧ East to West is worse
- ❧ Work schedules, Cramming for a Test, etc.
- ❧ Missed Sleep / Sleep Debit = Apparent Disruption
- ❧ You cannot “catch up” on missed sleep! Once it is gone . . . It is gone!
- ❧ Daylight Savings Time?

Insomnia



- ❧ Dyssomnia
- ❧ The failure to get enough sleep at night in order to feel rested the next day – prolonged and abnormal ability to obtain adequate sleep
- ❧ Falling asleep / staying asleep



Sleep Apnea



- ❧ Frequent interruptions in breathing during sleep
- ❧ Snoring – Blockage in the breathing passage
- ❧ Choking – flow of air to the lungs stops
- ❧ Low levels of oxygen or high levels of CO₂ in the blood trigger breathing reflexes
- ❧ Episode last 10 – 15 seconds and then ends suddenly, often with a physical movement of the entire body.
- ❧ Listless, sleepy, irritable
- ❧ Enlarged tonsils, infections in throat or middle ear, obesity – muscles at the base of the tongue may relax and sag
- ❧ SIDS

Narcolepsy



- ☹️ A condition characterized by sudden falling asleep or feeling very sleepy during the day
- ☹️ Overwhelming feeling of fatigue
- ☹️ Unusual sleep and dream patterns – dreamlike hallucinations or a feeling of temporary paralysis
- ☹️ Sleep attacks accompanied by brief periods of REM sleep
- ☹️ Difficulties on work, leisure, interpersonal relationships
- ☹️ Prone to accidents

Nightmares

- ❧ Frightening Dreams
- ❧ Dreaming Phase of REM sleep
- ❧ Frightens the dreaming sleeper, who will often wake up with a very vivid memory of an overly terrifying dream.



Night Terrors

- ❧ Sleep disruptions that occur during Stage IV Sleep
- ❧ Involve screaming, panic, confusion, sweating, rapid heart rate
- ❧ Awaken Suddenly / Persistent Fear that occurs at Night
- ❧ People typically have no memory
- ❧ 5-20 minutes



Sleepwalking



- ❧ Walking or carrying out behaviors while asleep
- ❧ Partly, but not completely awake
- ❧ Clumsy
- ❧ No Memory
- ❧ Typically something we outgrow
- ❧ May be inherited
- ❧ Usually harmless



Sleeptalking

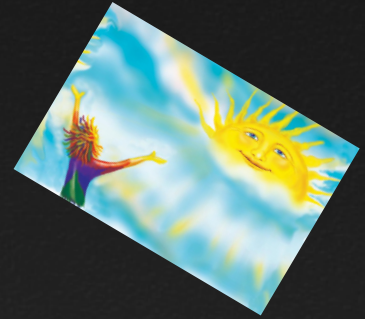
- ❧ Common sleep disruption
- ❧ People talk in their sleep more than they realize
- ❧ No Memory
- ❧ Can occur in REM or NREM sleep
- ❧ Once or many times / One word or longer speech
- ❧ Sometimes a noticeable pause, as if in conversation with another
- ❧ Can engage a sleeptalker in conversation
- ❧ Usually harmless



Dreams

- ☞ If culture values dreams, people are more likely to remember them
- ☞ Vague thoughts left over from the day's activities
- ☞ Become longer, more vivid, more dramatic – especially during REM Sleep
- ☞ Last Dream = longest & most likely to be remembered
- ☞ Will not typically remember more than 15 minutes of a dream
- ☞ A certain amount of dreaming seems necessary each night

Dream Content



- ☞ Typically commonplace content
- ☞ Day Residue : Incorporate everyday activities into our dreams
- ☞ Stimulus Incorporation: Incorporate a stimulus in the immediate environment into a dream.
- ☞ Realistic Time Scale
- ☞ Common places
- ☞ Negative Emotions
- ☞ Strenuous / Passive Activity



Freud



- ❧ Unconscious Wish Fulfillment Theory
 - ❧ Dreams represent unconscious wishes that dreamers desire to fulfill.
 - ❧ Road to unconscious = dreams
 - ❧ Unconscious wishes come out in dream state
 - ❧ **Manifest Content:** The storyline occurring in the dream – “on its face” – surface level
 - ❧ **Latent Content:** Disguised meaning of the dream, underlying or hidden content

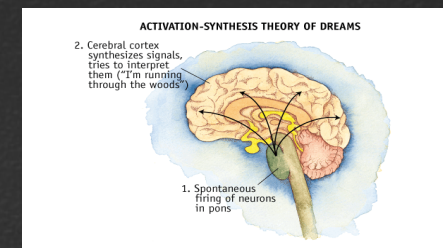
Autonomic Storm

- ❧ Occurs when we have a shaking or jerking that wakes us out of sleep



Activation Synthesis Theory

- ❧ Brain produces random electrical impulses during REM sleep that stimulate memories lodged in various portions of the brain, which are then combined to create some logical / illogical storyline
- ❧ Dreams mean NOTHING – just random occurrences, memories, etc.
- ❧ Function is to keep you asleep
- ❧ The more interesting and fascinating, the more you want to stay in your sleep state and continue through the sleep cycles



Dreams for Survival Theory

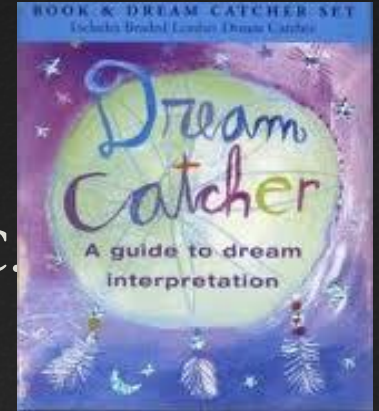
- ☞ Allows daily information that is critical to our survival to be reconsidered and reprocessed during sleep
- ☞ Areas that are activated during REM sleep are the areas related to attention, visual processing of data, arousal, memory formation, motivation, emotion
- ☞ These key areas to our function and survival are triggered during REM sleep
- ☞ When we dream, we are actually reprocessing information from the day to figure it out
- ☞ Protective Role of Sleep: Protection from Predators



Sleep Debit

- ☞ When we do not get enough sleep
- ☞ We can get behind, but we cannot make up missed sleep
- ☞ Consequences of sleep deprivation:
 - ☞ Fatigue
 - ☞ Accidents / Mistakes
 - ☞ Immune problems
 - ☞ Weight Gain
 - ☞ Health problems
 - ☞ Inattentiveness / Inefficiency
 - ☞ Irritability

Dream Interpretation



- ❧ Dream interpretations date back to 5000 B.C.
- ❧ Interpret: to tell the meaning of
- ❧ Freud: No matter how simple or mundane, dreams may contain clues to thoughts that the dreamer is afraid to acknowledge in his or her waking hours
- ❧ Inuit: Dreams contain hidden meaning. When dreaming, people enter the spiritual world where they interact with those who have passed away. The departed souls help the living reflect on some current or future event.

Dream Interpretation

- ❧ **Kleitman:** Dreaming may serve no function whatsoever – A dream is simply an unimportant byproduct of stimulating certain brain cells during sleep.
- ❧ **Problem-Solving:** Dreaming allows people an opportunity to review and address some of the problems that they faced during the day
- ❧ **Crick:** Dreams are the brain's way of removing certain unneeded memories – a form of mental house cleaning. This cleaning may be necessary because it is not useful to remember every single detail of our lives.